IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Akira Watanabe

Application No.: 10/716,622

Confirmation No.: 6336

Filed: November 20, 2003

Art Unit: 2164

For: PACKET SEARCH DEVICE, PACKET
PROCESSING SEARCH METHOD USED FOR
THE SAME, AND PROGRAM FOR THE
SAME

Examiner: H. A. Hotelling

BRIEF IN SUPPORT OF PRE-APPEAL REQUEST FOR REVIEW

MS AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicant respectfully requests a review of the legal and factual bases for the rejections

in the above-identified patent application. Pursuant to the guidelines set forth in the Official

Gazette Notice of July 12, 2005, for the Pre-Appeal Brief Conference Program, favorable

reconsideration of the subject application is respectfully requested.

Claims 1-17 pending in the application have been twice rejected, most recently in a Final

Office Action mailed October 8, 2009. In particular claims 1-17 stand rejected under 35 U.S.C. §

103(a) over U.S. Patent No. 6,754,662 (Li) in view of U.S. Patent Publication No. 2004/0049494

(Kottisa). Applicant respectfully submits that rejection of these claims is improper for the reasons

set forth in detail below.[1]

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[1] It is noted that the Advisory Action of November 17, 2009 indicated that the amendments in the October 30, 2009
Amendment are to be entered for purposes of appeal. Thus, the claims *as amended* are discussed in this paper.

Independent claim 1 is directed to a packet search device that includes, inter alia, a first search processor that searches predetermined conditional statements corresponding to a plurality of information areas included in header information of an inputted packet, to generate first search results using a first search method. The packet search device also includes a second search processor that searches the first search results of the first search processor using a second search method that is different from the first search method.

The first search processor divides the packet header information into a plurality of information areas and searches across each search conditional statement structured as binary search trees for each of the information areas separately, and the second search processor searches aggregated search results of the first search processor using a Hash method.

By virtue of the claimed structure, search trees are divided since searches are performed for each information area separately. As a result, search trees are smaller and therefore more easily managed than trees that are not so divided, and editing processing is curtailed. Also, because the search processing of the information areas involve no interdependency therebetween, the search processing can be carried out in parallel, speeding up search processing.

Further, the second search utilizes a Hash method to perform search *on the aggregated search result*. As a result, less Hash values are required and high speed searching can be achieved. Thus, claim 1 recites, inter alia, performing a first search using binary search trees separately for each of information areas, and performing a second search, on the aggregated search results from the first search, the second search being done using a Hash method on the aggregated result.

Li contains no teaching that header information of a packet is divided into a plurality of information areas, and each information area is searched across each conditional statement structured as a binary search tree separately. Moreover, Li does not teach that search results of all information areas are aggregated and the aggregated search result is searched using a Hash method.

In the Advisory Action dated November 17, 2009, the Examiner dismissed the above argument by stating, on the Continuation Sheet, that "the applicant does not support his arguments

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with factually supported objective evidence." In the first place, in the October 8, 2009 Final Office Action, with respect to the feature of dividing the header information into a plurality of information areas and using search trees, the Examiner stated that this feature (at the time recited in dependent claim 2) was found in Li at col. 5, lines 54-57. This is not correct. The cited portion of Li reads as follows:

> It should be noted that the choice of data structures (i.e. a link list or a binary tree or other structure) may depend on the particular design objective of the packet classifier. For example, if simplicity is desired, a link list may be used, while if high speed is desired, a binary search tree may-be utilized.

While this portion of Li may be said to show that the choice of whether to use a link list, or binary tree, or other structure, depends on the design objective, it says nothing whatsoever relating to what is explicitly recited in claim 1, i.e., that the first search processor divides the packet header information into a plurality of information areas and searches across each search conditional statements structured as binary search trees for each of the information areas separately. As discussed previously, searching the divided packet header areas separately in the claimed manner has the advantages discussed above. The above-quoted portion of Li, alleged to meet this recited feature, shows no teaching or recognition of the feature itself, still less any recognition of any advantage such feature would have.

Thus, as was pointed out previously, and contrary to the statement in the Advisory Action, the Office Action has failed to identify any portion of Li that teaches the feature in question, and has therefore failed to set forth a prima facie case of obviousness. As the quoted portion of Li was relied upon as allegedly meeting the abovementioned feature of claim 1, claim 1 is believed clearly patentable over the cited references, taken individually or in combination. This feature is also present in amended independent claims 9 and 17, which are believed patentable for at least the same reasons.

The Office Action has also failed to identify any portion of Li that reads on the feature of amended claim 1 (previously recited in dependent claim 3) by which a second search processor searches *the aggregated search results of the first search processor*, using a Hash method. In the

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October 8, 2009 Final Office Action, the Examiner took the position that this feature was taught in Li at col. 3, lines 38-39 and col. 4, lines 7-9.

In the first place, as Li does not teach the feature of dividing the packet header information into a plurality of information areas and searching across each search conditional statements structured as binary search trees for each of the information areas separately, it cannot be said to teach doing anything to the aggregated search results of such a first processor, since Li has no conception of the recited aggregated search results. Thus, Li cannot teach searching the aggregated search results the first search processor at all, still less using a Hash method as claimed.

Second, the portions of Li cited as allegedly teaching this feature do no such thing. Col. 3, lines 38-39 discusses the use of a hash table generally, but contains no teaching of using a Hash method to search aggregated search results from a previous search. Col. 4, lines 7-9 simply discusses that computer cache may contain a hash table. Thus, contrary to the position taken at page 5 of the Final Office Action, the Examiner has failed to identify any teaching of the feature of searching *the aggregated search results the first search processor* at all, still less using a Hash method to do so, as claimed.

For at least the abovementioned additional reasons, no prima facie case has been set forth against independent claim 1 and that claim, as amended, is believed clearly patentable over the cited art. The other amended independent claims recite a substantially similar feature and are believed patentable for at least the same reason.

Although the abovementioned deficiencies in Li are enough to overcome the defective rejection, applicants wish to point out that the Examiner's reliance on Kottisa as allegedly teaching the concept of searching first search results using a second search method that is different from the first search method, is not well founded.

Kottisa relates to a system that allows a user that has performed an Internet search to more easily look through, i.e., "traverse" the search results. According to Kottisa, typical search results may include thousands of results that are not of any interest to the user. Kottisa's system
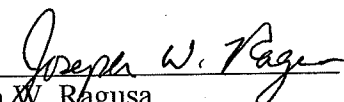
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arranges the search results of the search engine, originally presented in a first order, into a second order, with the hope that the new order will make it more likely that relevant search results will be seen by the user as he looks through the results.

In Kottisa, the *only* search performed is the one performed by search engine 2. No second search is performed at all. The very same results are simply *rearranged*, without searching them again. Kottisa's scrambling of the search results, in the hope that a user will spot more relevant results, does not amount to performing a new search on the results of the search engine. For this additional reason, even if Li and Kottisa are combined, they do not teach or suggest all of the elements recited in claim 1 or the other independent claims. The dependent claims are believed patentable for at least the same reasons as their respective base claims.

In view of the foregoing, Applicant respectfully submits that the pending claims are allowable over the cited references, and reconsideration and withdrawal of the rejections are respectfully requested and a Notice of Allowance issued. No fee is required for the Notice of Appeal because it has been previously paid. In the event a fee is required or if any additional fee during the prosecution of this application is not paid, the Patent Office is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 50-2215.

Dated: December 21, 2009   Respectfully submitted,

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